

according to the plans, will contain rooms for chemical, biological, and botanical laboratories, a library and reading room, a handsome assembly room, and recitation rooms. It will be 130 feet long, three stories in height, and constructed of Port Deposit granite stone. Work on it was begun in August, 1879.

The second building, Merion Hall, contains the dormitories. It is built of Fairmount stone, three stories high, and will be 160 feet long, affording accommodation for fifty students and caretakers. The study rooms are to be so arranged that two of the pupils will use one in common, each pupil having a bedroom on either side of the study room. The latter apartments will each have an open fireplace, but the building will be warmed by air heated by steam, and carried through the house under slight pressure from a fan. All rooms occupied by the students are to be ventilated by a main shaft which acts as a chimney for the boiler house, so that a constant current of warm air reaches the rooms, while at the same time the vitiated air is withdrawn. All the bathing and plumbing arrangements have been placed in one wing, constructed with great care, and are ventilated by force ventilation. The dining-room entrance, hall and parlour, are to be appropriately fitted up.

For the gymnasium the plans provide a brick building, 80 by 74 feet. It will contain a main hall, supplied with the most perfect appliances in use by Dr. Sargent at Harvard College, offices, dressing-room, baths, and an examination room, in which a record of the exercises will be kept. A track, raised nine feet from the floor, and extending around the building on the inside, will also be provided, in order to permit the students to run or walk when inclement weather prevents out-door exercise. The gymnasium will be under the charge of a lady trained by Dr. Sargent, who will be the instructress in light gymnastics. Under her direction all exercises will be carefully regulated to the strength of the students, to insure normal development and avoid all danger of over-exertion.

The laundry will contain the boilers which will furnish heat and hot water to the other buildings, in addition to the necessary appliances of a laundry. A house is being built on the adjoining lot for the President, and three cottages which are already on the premises are to be used for the Faculty or to accommodate any overflow of students from Merion Hall until other permanent structures like it are built. The plan adopted contemplates four such structures, to hold 160 students. The total cost of the buildings, including construction and furnishing of laboratories, providing for heating and water supply, the purchase, grading, and ornamenting the grounds, a complete system of drainage on the Waring system, and furniture, will probably exceed 200,000 dols.

It is understood that a large number of applications have already been received by the trustees, and many students whose names have not yet been recorded are known to be preparing. The college will be one of strictly high grade, and will have no preparatory department. The "group system" of arranging studies in the college course, which is adopted, to some extent, in England, but most perfectly represented in the Johns Hopkins University at Baltimore, is to be used. It secures to the students, it is claimed, a thorough training in the two chief ancient and the modern languages, in mathematics, and in some branches of science, besides instruction in metaphysics, drawing, hygiene, and art.

Each department will be under the instruction of specialists, and all students will be required to pursue certain prescribed studies. There will be five fellowships to college graduates who have already distinguished themselves in particular branches of study, namely: Greek, English, mathematics, history, and biology. A scholarship of 500 dols. will be offered yearly to a graduate of Bryn Mawr College to enable her to pursue studies in some European university.

The Trustees, knowing the large expense necessary to procure the best professors, a good library, and a supply of all laboratory appliances required for a college of the best class, have husbanded the funds placed in their hands for the future use of the institution, and it is said but little of the endowment will have been encroached upon before the college opens. Although some of the Trustees are also managers of Haverford College, "Bryn Mawr" will be an independent institution, and practically a Philadelphia one.

The Faculty has not yet been perfected, but the Trustees have made the following selections:—Dean of the Faculty and Professor of English, M. Carey Thomas, Ph.D., University of Zürich; Associate in Botany, Emily L. Gregory, L.B., late in

charge of the laboratory work of Harvard Annex, and Teacher of Botany in Smith College; Associate Professor of Biology, Edmund B. Wilson, Ph.D., Fellow in Biology of Johns Hopkins University, and late Lecturer on Biology in Williams College, and Associate Professor of Mathematics; Charlotte Angus Scott, A.B., Sc.B., University of London, and late Lecturer on Mathematics in Girton and Newnham Colleges. It is expected that all the chief appointments will have been made before the appearance of the college catalogue.

Dr. James E. Rhoades, the President of the college, in speaking of women's colleges a few days since, said: "New England has from an early date given great attention to collegiate education, and has at the present time three colleges for women, beside the Harvard Annex. The States south of New England and west of Pennsylvania need a college to give the desired facilities for higher education to the graduates of girls' schools and high schools. A large part of the teaching in the United States is done by women, who, not having the advantages of men, are obliged to take lower and less remunerative positions."

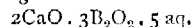
SCIENTIFIC SERIALS

The American Journal of Science, December 1884.—The distribution and origin of Drumlins, by W. M. Davis. The term drumlin is here taken in a generic sense to include any kind of more or less smoothly-rounded hills formed by local accumulation of glacial drift on a foundation of different geological formation. The subject is treated under five heads:—(1) the place of drumlins in a geographical classification; (2) terminology; (3) general description; (4) distribution; (5) origin.—The geological relations and genesis of the specular iron ores occurring in the Sierra Maestra (Coast Range) of the district of Santiago de Cuba, by James P. Kimball.—A new tantalite locality, by Charles A. Schaeffer. The author describes a mineral from the Etta tin mine, Dakotah, hitherto supposed to be casiterite, but which is shown to be tantalite. The analysis gave the following results:—

Tantalite oxide	...	...	...	...	...	79.01
Stannic oxide	...	...	...	...	...	0.39
Ferrous oxide	...	...	...	...	...	8.33
Manganous oxide	...	...	...	...	...	12.13

99.86

—Note on Palæozoic rocks of Central Texas, by Charles D. Walcott. The results are given of a recent survey of a portion of the Palæozoic area in this region, undertaken chiefly for the purpose of studying the Cambrian section and collecting fossils from the Texas Potsdam horizon. Besides procuring fresh data on the Potsdam and Silurian sections and faunas, the author determined the true relations of an area hitherto known as Archean, but which is now referred to the Cambrian. The age of the granite of Barnett County was also determined.—On the sufficiency of terrestrial rotation for the defection of streams, by A. C. Baines.—Chemical affinity; part iii., the existing problem, by John W. Langley.—Peculiar modes of occurrence of gold in Brazil, by Orville A. Derby. A specimen in the National Museum, Rio de Janeiro, from Ponte Grande, Minas Geraes, shows films of gold on limonite, which the author thinks can scarcely be accounted for except on the hypothesis of natural deposition from solution. The districts of Campanha and S. Gonçalo in the same province afford examples of large auriferous deposits in decomposed gneiss with an almost complete absence of veins and of the other usual concomitants of gold.—On colemanite, a new borate of lime, by A. Wendell Jackson. This substance has recently been determined by J. T. Evans, whose analysis gives the formula:



It differs from pandermite in containing five instead of three molecules of water, but its chief interest lies in its morphological relations.—On the decay of quartzite and the formation of sand, kaolin, and crystallised quartz, by James D. Dana.

Revue d'Anthropologie, tome viii. fasc. 4, 1884. Paris.—A continuation of M. Mathias Duval's lectures on "Transformism," dealing chiefly with the questions of natural selection and survival of the fittest.—Notes on the anatomy of two negroes, by Dr. T. Chudzinski, head of the anatomical department of the Faculty of Medicine at Paris.—On the "Beni-M'Zab," by Dr. Amat. The writer here gives the results of

personal observations made during his tenure in 1883 of a medical official post in the country of these tribes, who live under the French protectorate, and occupy an immense territory of Barbara, lying between 32° and $33^{\circ} 20'$ N. lat. and $0^{\circ} 40'$ and $1^{\circ} 50'$ E. long. After giving a summary of the principal historical events connected with this people, who lay claim to being the sole representatives of the pure Berbers in Algiers, Dr. Amat enters at great length into the consideration of the results obtained by his careful anthropometric examination of fifty natives of Ghardaia. From the means of these determinations it would appear that the M'Zabites are of generally lower stature, and have less delicately proportioned limbs and features than the Arabs, but that, like the latter, they are often perfectly white in infancy, while light-coloured hair and beards are occasionally met with among the adults. The people are under the government of a religious or teaching body, composed of a powerful caste of learned clerks, or *tolbas*. The practice of interring food and domestic utensils with the dead points to usages of more ancient date than those of the form of Islamism which they follow. Unlike the genuine Arabs, they migrate in large numbers to the cities, where they conduct prosperous mercantile businesses, while they are the great corn purveyors of the Sahara. They employ among themselves a special form of language, which is a Berber dialect with certain affinities to the Kabyle, and is not a written tongue. The form of Islamism followed is that known as Owahbite Ibadite.—The concluding part of M. Denicker's notes on the Kalmuks. The author here treats of the special form of Buddhist Lamaism followed by the Kalmuk tribes, their hierarchy, mythology, rituals, religious festivals, objects of worship, and the special forms under which Cakya, Mowin, and others of their most highly-venerated so-called *bourkans*, are worshipped. Owing to the comparatively late adoption of Buddhism, the Kalmuks have retained in their epic poems, aphorisms, and folk-lore, of which examples are given, more of the primitive Mongolian character than some of their kindred; but the Russian Kalmuks, like their brethren in China, are rapidly losing the warlike and aggressive spirit of their ancestors under the levelling systems of government to which they are subjected in both empires.—On the horizontal plane of the cranium, by E. Goldstein, with tables giving the variations and differences determined among persons of different races. These tables, which are remarkable for their voluminous and detailed character, will be found of great use in studying the causes of the angular variations observable in various ethnic groups, and in the anthropoids, and in determining how far such deviations from a fixed horizontal line are dependent on race, age, or disease.

Bulletins de la Société d'Anthropologie de Paris, tome vii., fasc. 3, 1884.—M. de Ujfalvy's report of the results obtained by Dr. Lenhossek and others from an examination of the ancient Magyar tumuli, laid bare on the reconstruction of the town of Szegedin after the inundations of 1879.—On the age and character of the covered *allées* of dolmens on the plain of Ellez, near Tunis, by M. Girard de Rialle. The report is based on the communications of M. Poinssot.—On the presence of *Elephas primigenius* in the alluvial Chelles-beds, by M. Chouquet, who does not consider the juxtaposition of fossil remains as a proof of contemporaneity, but rather as the result of distinct depositions, which frequently belong to different geological periods.—Communication by M. D'Acy on the mammoth of the Cromer forest beds.—On the caves of Saumoussay, near Saumur, by M. Bonnemère, whose opinion that they are of pre-Roman date is opposed by M. Drouault and others.—On the exploration of the caves of Muikow in Cracovia, by M. Zaborowski. The authenticity of the supposed "finds" of Muikow is forcibly called in question by MM. Mortillet, Szambatty, and other local authorities.—Notes on the anthropological characters of California, by M. Ten Kate, who has here given the results of the cephalometric and other measurements made by him in his explorations, in 1883, of the districts of California south of $24^{\circ} 40'$ N. lat. The crania examined were of a well-marked Melanesian character, dolichocephalous, with moderate prognathism.—On a supplementary part of the great pectoral muscle, by M. Chudzinski.—On the influence of climate and race on the normal temperature of the human body, by Dr. Maurel. The results deduced from carefully tested determinations seem to be that the temperature of Europeans in intertropical and equatorial regions is raised only about $0^{\circ} 30'$ above its normal range in Europe, but that the mean temperature of certain races, as the Hindoos, is about $0^{\circ} 50'$ higher than that of Europeans.—On a gorilla foetus, by M. Denicker.

The subject was a female resembling in its pose and its thoracic development a human foetus of five or six months. The lower members presented the true gorilla character.—On the antiquity of the Dingo in Australia, by M. Zabrowski.—On the case of a living double monstrosity, by M. Fourdrignier.—On cephalometric determinations of certain murderers who had been executed, as compared with measurements yielded by an equal number of persons distinguished for excellence of character or attainments, by Dr. Bajenoff.—On the first rudiments of infantine speech, by Dr. Allaire. The author considers that six distinct periods are observable in the development of the powers of speech, which are dependent on the successive processes of suction, digestion, dentition, &c., labial sounds being first emitted, while the dentals are acquired after the gutturals and nasals.—On recent German views regarding the cradle of the Aryan races, by M. Ujfalvy.—On the depopulation of the Marquisas, by M. Clavel, who considers that the general change of habits, and the cessation of intertribal wars, with its attendant decrease of activity, which have resulted from their contact with Europeans, must, rather than alcoholism of which he has seen no genuine cases, be accepted as the real factors in the rapid diminution of population that is going on in the Polynesian archipelago.—Note on the chariots of war employed by the Gauls, by M. Pétriment.—On the significance of the annual festival of the Indian Arikaris of Dokata, by Dr. Hoffman.—On the pathological characteristics of the Mandinguis of the Ouolof country, by Dr. Tautain.—On the "*Cowade*," by Dr. Maurel. The writer, on the authority of Dr. Lenoël of Amiens, asserts that this usage exists at the present day among the Indians of Guyana, near the Amazon.

Reale Istituto Lombardo, November 13, 1884.—The paintings of the Italian masters in the public museums of Europe, by Prof. G. Mongeri.—On the projected Penal Code for Italy, by Prof. A. Buccellati.—On the secular variation of the elements of terrestrial magnetism at Milan, by Ciro Chistoni.—On the total eclipse of the moon, October 4, 1884, by Prof. G. Celoria.—Meteorological observations made at the Brera Observatory, Milan, during the months of August and September, 1884.

November 27.—Experimental studies on the antiseptics of tubercular virus, by Prof. G. Sormani and Dr. E. Brugnatielli.—Successful treatment of a large tumour of twenty-two years' standing in the left side of a patient forty years of age, by Dr. G. Fiorani.—On the geometrical movement of the invariable systems, by Prof. C. Formenti.—The paintings of the Italian masters in the public museums of Europe (continued), by Prof. G. Mongeri.—Meteorological observations made at the Brera Observatory during the month of October 1884.

Fachbücher für wissenschaftliche Botanik, herausgegeben von Dr. N. Pringsheim, Band xiii., Viertes Heft.—"Beiträge zur Morphologie und Physiologie der Meeresalgen," by G. Berthold, contains detailed investigations of the heliotropism of marine Algæ; also of the influence of other factors upon their structure and mode of growth, together with a description of certain means by which marine Algæ protect themselves from too great intensity of light, e.g. (1) by hair-like organs, of which the author distinguishes three types; (2) by peculiar formations in the protoplasm of individual cells: the most highly developed structures of this order are found in the genus *Chylocladia*, where one is to be seen in each of the peripheral cells of the thallus, and appears as a highly refractive, plate-like mass in close apposition with the outer wall. Reactions show that these structures consist chiefly of a substance of a proteid nature.—"Ueber die Wasservertheilung in heliotropisch gekrümmten Pflanzentheilen," by A. Thate. The author tests Kraus's view that in organs with positively heliotropic curvature the shaded side contains more water than the illuminated side; he concludes that such a difference in amount of water cannot be proved, though on the other hand it cannot be asserted that it does not exist, analytical methods being as yet too imperfect: at best only approximate results can be obtained by Kraus's method.

Band xiv., Erstes Heft.—"Beiträge zur Entwicklungsgeschichte einiger Inflorescenzen," by K. Göbel. This article is chiefly devoted to the study of the development of the inflorescence in the *Gramineæ*. The author finds that, as regards their symmetry, the different varieties of inflorescence in this order cannot be referred to one type, but to two, the dorsiventral and the radial.—"Ueber Bau und Funktion des pflanzlichen Hautgewebesystems," by M. Westermaier, suggests as an important function of the epidermis that it shares with the vascular

system in the supply of water to the internal tissues, forming a complete peripheral mantle of aqueous tissue.—“Ueber Poren in den Aussenwänden von Epidermiszellen,” by H. Ambronn. An attempt to show that the origin of pits in the outer walls of epidermal cells is referable to undulations in the young walls, and that these pits are not to be regarded as the functional equivalents of those in the walls of internal tissues.—“Nachträgliche Bemerkungen zu den Befruchtungsact von Achlya,” by N. Pringsheim. A further contribution to the controversy as to the sexuality of the Saprolegniae.

Zweites Heft.—“Ueber das Vorkommen von Gypskrystallen bei den Desmidiaceen,” by Alfred Fischer. An investigation of the crystals of Calcium sulphate already known to exist in *Closterium*; similar bodies are also found in other genera of Desmids. In *Staurastrum*, *Desmidiium*, and *Hyalotheca* they are not found. The author concludes that they are to be regarded as an excretory product; when the quantity produced is small, it may remain dissolved in the cell-sap; when larger it appears as crystals.—“Ueber farbige körnige Stoffe des Zellinhalts,” by P. Fritsch. This article deals with the “anatomical structure” of colouring granules, exclusive of chlorophyll, and without reference to their development. In the light of recent discoveries the chief interest of such bodies centres in their development, and their relation to the chlorophyll granules.—“Die Zellhaut, und das Gesetz der Zelltheilungsfolge von Melosira (Orthosira Thwaites) Arenaria Moore,” by Otto Müller. A careful investigation of the succession of divisions as seen in this filamentous Diatom, which will throw light upon the process of multiplication of cells in other members of the group.

Drittes Heft.—“Untersuchungen über die Homologien der generativen Produkte der Fruchtblätter bei den Phanerogamen und Gefässpflanzen,” by L. Celakovsky. The author brings evidence from teratological specimens to bear upon the question of the homology of the integuments of the ovule with the indusium of the Fern-Sorus, with the object of establishing that homology.—“Untersuchungen über die Morphologie und Anatomie der Monokotylen-ähnlichen Eryngien,” by M. Möbius. The main results of this investigation are that the similarity of the parallel-nerved species of Eryngium to the Monocotyledons lies only in the leaves and rhizomes; that it extends, however, beyond mere external characters, and may be recognised in the anatomical structure.

Bulletin de la Société des Naturalistes de Moscou, 1884, No. 1.—On the calculation of the average figures of relative wetness, by K. Weihrach (in German). The author shows that the averages calculated by a mere addition of the observed values of $\frac{s}{k}$ do not give correct figures, and advocates a calculation consisting of an addition of all numerators (s) and of all denominators (k) separately, before making the division. He illustrates his method by several examples taken from the series of observations in the Caucasus. The paper will be continued.—What becomes of bile in the digestive tube? by Dr. A. Weiss (in French). The author confirms to some extent the well-known opinion of Prof. Schiff.—Materials for the flora of the Government of Tamboff, district of Tamboff, by Th. Ignatieff. The steppe flora is characterized, as usual, by the *Stipa pennata*, but the following plants, showing a passage towards a more southern flora, are met with:—*Adonis vernalis*, *Verbascum Phanicum*, *Echium rubrum*, *Muscari leucophaeum*, *Iris furcata*, *Fritillaria ruthenica*, and *Salvia nutans*. All these, which do not extend much north—they are not met with in the Moscow flora—are remarkable for the most vivid coloration of their flowers. The author gives a list of 464 plants found at Exthal.—Review of the generative organs of the males of *Bombus*, by General Radoszkowski (in French), with four plates.—Short description of a journey to Central Asia, lecture by N. Sorokine (in French). The author adds to his paper a very interesting chromolithographed picture representing a *saksaul* forest (*Akabasis ammodendron*, Ledebour) of the Kyzyl-kounis deserts. It is for the first time that we find in print so good a representation of this plant as it covers the *bar-khans*, or sandy downs, of the Steppe.—Researches into the histology of the hair, the brittle, the prickle, and the pen, by W. Lwoff (in German), with four plates.—Notice on the hypotheses as to the origin of Lake Baikal, by W. Dybowski (in German). The recent discovery in Lake Baikal of the very same sponge (*Lubomirskia baicalensis*) which is met with in the Bering Sea leads to the conclusion that it has immigrated into

Lake Baikal from this sea. On the other side, several explorers of Siberia, and recently again M. Cherski, have shown that there are no traces of a marine communication of Lake Baikal with the sea during and since the post-Pliocene period; but there are very numerous traces of large lakes connected formerly by broad rivers, and it would seem probable that the sponge might have immigrated by this way. Dr. Dybowski leaves the question open.

Bulletin de l'Académie Royale de Belgique, November 8, 1884.—On certain phenomena of reduction produced in grains when germinating, and on the formation of diastase, by M. A. Jorissen.—On the quadrilinear form and surfaces of the third order, by Prof. C. Le Paige.—Verbal communication on the phenomenon of stellar scintillation, by Ch. Montigny.—On the advanced vegetation observed in the spring of 1884 at Longchamps-sur-Geer, by Baron de Selys Longchamps.—On the chemical composition of krokydolite, and on the fibrous quartz of South Africa, by A. Renard.—On the Chinese philosopher, Lao-tse, a predecessor of Schelling in the seventh century, B.C., by M. C. de Harlez.—An ambassador of the Duke of Alençon at the court of Queen Elizabeth, by Baron Kervyn de Lettenhove.—On a portrait of Van Dyck's grandmother in the Este Gallery, Modena, by Henry Hymans.

Atti della R. Accademia dei Lincei, July 1884.—On the co-existence of different empirical formulas, and in particular on those containing the capillary constant of fluids or the cohesion of solids, by Adolfo Bartoli.—Report of the committee appointed to rearrange the Corsini Library recently acquired by the Academy. This valuable library was found to comprise altogether 39,082 works, including 5903 Elzevirians, Aldines, and other old and rare editions, 2511 MSS. and 191 volumes of music, besides 116 portfolios of engravings and 17,733 prints and drawings.—Meteorological observations made at the Royal Observatory of the Capitol during the month of June 1884.

Rivista Scientifico Industriale, October 31, 1884.—Variations in the electric resistance of solid and pure metallic wires under variations of temperature, by Prof. Angelo Emo.—Boulter's pyrometer, described and figured by M. Lauth.—The gigantic fossil turtle of Verona, described by S. Capellini.

November 15–30, 1884.—Variations in the electric resistance of solid and pure metallic wires under variations of temperature (continued); part 2, original determinations of the electric resistance of the chief metallic wires under different temperatures, by Prof. Angelo Emo.—On the oxidation of sulphur by ozone, by S. Zinno.—The Ammonites of the province of Venice, described and figured by T. A. Catullo.

SOCIETIES AND ACADEMIES

LONDON

Geologists' Association, January 2.—On some recent views concerning the geology of the North-West Highlands, by Henry Hicks, M.D., F.G.S., President of the Association. The author stated that as the *Proceedings* of the Association contained several papers dealing with the controversy concerning the rocks of the North-West Highlands of Scotland, he thought it advisable to call the attention of the members to views contained in an important article published in *NATURE* (p. 29) by the Director-General of the Geological Survey, and in a “Report on the Geology of the North-West of Sutherland,” by Messrs. Peach and Horne, in the same number, which cannot fail either to change entirely the future character of the controversy, or bring it rapidly to a satisfactory issue. Because of the positions held by the chief disputants on the one side, the controversy had assumed, to a great extent, the appearance of being one between official surveyors and some amateurs, who had been led to study the questions involved in it. The well-known and widely-accepted views first put forward by Sir R. Murchison, that there were clear evidences in the North-West of Scotland of a “regular conformable passage from fossiliferous Silurian quartzites, shales, and limestones upwards into crystalline schists, which were supposed to be metamorphosed Silurian sediments,” were fully adopted by the official surveyors, including Sir A. C. Ramsay and Prof. Geikie, also by the late Prof. Harkness and others, who had examined the areas. Prof. Nicol, of Aberdeen, however, for many years stoutly contested Sir R. Murchison's views, and maintained that they were based on erroneous observations. Unfortunately, at that time his views did not meet with much approval. In the year 1878 the author re-opened the contro-